

Problem Set #3

1. Let Y = position offered and N = position is not offered

(a) $S = \{(YYY), (YYN), (YNY), (YNN), (NYY), (NYN), (NNY), (NNN)\}$

(b) Let N = number of offeres made; N is a discrete RV

(c)

Experimental Outcome	YYY	YYN	YNY	YNN	NYY	NYN	NNY	NNN
Value of N	3	2	2	1	2	1	1	0

2. $x = 0, 1, 2, \dots, 12$

3. Let X = # of steps in first procedure and Y = # of steps in second procedure

(a) $S = \{(11), (12), (13), (21), (22), (23)\}$

(b) Z = # of total stops to complete analysis = X + Y

Experimental Outcome	11	12	13	21	22	23
Value of Z	2	3	4	3	4	5

4. X = level of optimism about the market

(a)

X	f(x)
1	0.07
2	0.21
3	0.29
4	0.39
5	0.04

(b)

$$\begin{aligned}
 E(X) &= \sum xf(x) \\
 &= 0.07 + 0.21(2) + 0.29(3) + 0.39(4) + 0.04(5) \\
 &= 3.12
 \end{aligned}$$

(c)

$$\begin{aligned}
 Var(X) &= \sum (x - \mu)^2 f(x) \\
 &= 0.07(1 - 3.12)^2 + 0.21(2 - 3.12)^2 \\
 &\quad + 0.29(3 - 3.12)^2 + 0.39(4 - 3.12)^2 + 0.04(5 - 3.12)^2 \\
 &= 1.0256
 \end{aligned}$$

$$\begin{aligned}
 \sigma &= \sqrt{var(X)} \\
 &= 1.0127
 \end{aligned}$$

(d) The level of optimism on average is neutral. The variability is about within 1 ranking.